

REMARKS/ARGUMENTS

In this Amendment After Final (“Amendment”), Applicants propose to amend paragraphs [0015], [0036], and [0044] in order to place the application and rejected claims in better form for consideration on appeal, and in order to improve clarity.

No claim amendments are made in response to the Examiner’s rejection under 35 U.S.C. § 103(a).

Prior to entry of the Amendment, claims 1-34 were pending in the application. After entry of the Amendment, claims 1-34 remain pending in the application.

In the Final Office Action, the Examiner rejected claims 24, 28, 30, 32, and 34 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,504,578 B1 to Gu (“Gu”) in view of U.S. Patent Application Publication No. 2002/0024995 A1 to Kim (“Kim”).

The Examiner also stated that: (1) claims 1-23 are allowed; and (2) claims 25-27, 29, 31, and 33 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Allowed and Allowable Claims

Applicants gratefully acknowledge the Examiner’s statements that claims 1-23 are allowed and that claims 25-27, 29, 31, and 33 would be allowable.

Rejection Under 35 U.S.C. § 103(a)

To establish a prima facie case of obviousness under 35 U.S.C. § 103(a) using multiple references: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention; (2) there must be a reasonable

expectation of success to combine the references in a manner resulting in the claimed invention; and (3) the references must teach or suggest all the claim limitations. MPEP 2143.

However, Applicants again submit that there is no suggestion or motivation, either in Gu, Kim, or the knowledge generally available to one of ordinary skill in the art, to combine Gu and Kim in a manner resulting in the invention of claim 24 or 30. At least partly as a result, Applicants also submit that no proper combination of Gu, Kim, and the other art of record teaches or suggests all the limitations of claim 24 or 30. For at least these reasons, Applicants submit that the Examiner has failed to establish a proper prima facie case of obviousness.

As discussed below, Gu discloses detection of a vsync signal prior to symbol timing recovery, while Kim discloses detection of a vsync signal after symbol timing recovery. Also, Gu discloses symbol timing recovery using the vsync signal, while Kim discloses symbol timing recovery without using the vsync signal. Thus, one of ordinary skill in the art would not be motivated to combine Gu and Kim because Gu teaches away from Kim, contrary to MPEP 2141.02.VI. Kim similarly teaches away from Gu. In addition, one of ordinary skill in the art would not be motivated to combine Gu and Kim because attempting to combine Kim into Gu would change the principle of operation of Gu, contrary to MPEP 2143.01.VI. In a like manner, attempting to combine Gu into Kim would change the principle of operation of Kim.

Applicants note that Gu states “both embodiments of the present invention [detect] a vsync signal of high reliability by which a hsync signal and a starting position of data can be detected at a position relative to the detected vsync signal.” Gu, c. 12/ll. 22-26.

For example, in the discussion of FIG. 3 in Gu, “the position of the hsync signal can be detected at a position relative to the detected vsync signal.” Id., c. 7/ll. 57-59. Thus, FIG. 3 of

Gu (and its associated discussion) describes a sequence in which the vsync signal is detected prior to symbol timing recovery and symbol timing recovery uses the vsync signal.

In another example, in the discussion of FIG. 7 in Gu, “DC eliminator 700 first eliminates the DC from the received VSB signal . . . to detect the sync signals” (Gu, c. 8/ll. 47-59), then “vsync correlator 721 of the sync signal detecting unit 720 obtains the correlation of the DC-eliminated VSB signal with the reference vsync signal” (Id., c. 8/ll. 60-62), “maximum value position detector 722 then detects the position of the symbol having a highest correlation with the reference vsync signal for each field” (Id., c. 10/ll. 29-31), and “once the ‘S7’ signal is received, the hsync signal generator 724-3 calculates the position of the hsync signal from the position of symbol ‘S8’ by using a simple counter to thereby generate the hsync signal” (Id., c. 11/ll. 54-58). Thus, FIG. 7 of Gu (and its associated discussion) describes a specific sequence in which DC is eliminated before detecting the vsync signal, the vsync signal is detected prior to calculating the position of an hsync signal (“the position of the hsync signal can be detected at a position relative to the detected vsync signal without a separate hsync signal detector”), and the vsync signal is detected prior to symbol timing recovery. Once again, the vsync signal is detected prior to symbol timing recovery and symbol timing recovery uses the vsync signal.

In contrast, Kim discloses “symbol timing recovery without using a sync signal” (Kim, p. 2/¶ [0011]) (emphasis added), as well as the separation and detection of the vsync and hsync signals after symbol timing recovery (Id., pp. 2-3/¶ [0021]). In other words, Kim discloses detection of a vsync signal after symbol timing recovery and symbol timing recovery without using the vsync signal.

Therefore, one of ordinary skill in the art would not be motivated to combine Gu and Kim because Gu teaches away from Kim (and vice versa) and because attempting to combine

Kim into Gu would change the principle of operation of Gu (and vice versa). As a result, Applicants submit that there is no suggestion or motivation to combine Gu and Kim, nor is there motivation to combine Gu and Kim in a manner resulting in the invention of claim 24 or 30.

Nor does the Examiner argue that the other art of record overcomes the deficiencies of Gu and Kim discussed above. For at least this reason, Applicants also submit that no proper combination of Gu, Kim, and the other art of record teaches or suggests all the limitations of claim 24 or 30.

Additionally, the Examiner mischaracterizes the sync signal separator and control signal generator 500 of Kim as “sync signal generator circuit 500.” Final Office Action, p. 4, § 4. As discussed in Kim, “sync signal separator and control signal generator 500 separates and detects a data segment sync signal and a data field sync signal from the signal selected in the switching unit 400 and generates various control signals which are necessary in other elements by using the two sync signals.” Kim, p. 3/¶ [0021]. Applicants submit that this mischaracterization undermines the Examiner’s argument.

Further, as discussed above, both output signal X_a and output signal X_b of Kim are post-symbol timing recovery, whereas the vsync signal detecting apparatus in FIG. 3 of Gu is pre-symbol timing recovery. For this reason as well, Applicants submit that it would not be obvious to one of ordinary skill in the art to attempt the mischaracterized combination hypothesized by the Examiner.

For at least these reasons, Applicants submit that independent claims 24 and 30 are patentable under 35 U.S.C. § 103(a) over any proper combination of Gu, Kim, and the other art of record. Applicants further submit that dependent claims 25-29 and 31-34 are patentable under 35 U.S.C. § 103(a) over any proper combination of Gu, Kim, and the other art of record, at least

for the same reasons that claims 24 and 30 are patentable, from which claims 25-29 and 31-34 directly or indirectly depend.

Request for Reconsideration and Allowance

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of each of claims 1-34 in connection with the present application is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Director of the U.S. Patent and Trademark Office is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; in particular, extension of time fees.

Respectfully submitted,

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